



Rosen Solar Energy Co., Ltd.

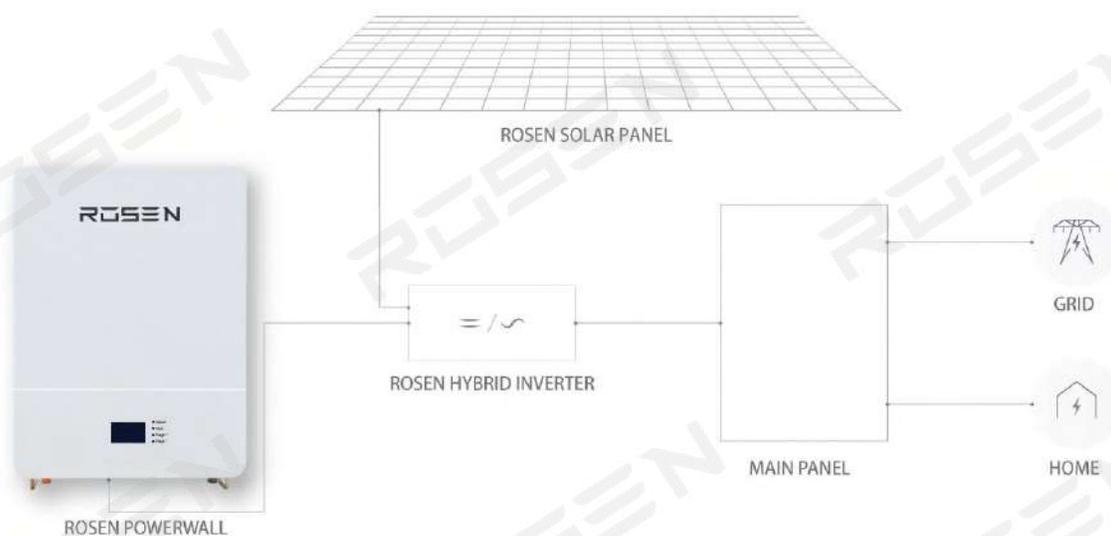
User Manual

LFP48V100AH (48V-4.8Kwh)

LFP48V150AH (48V-7.2Kwh)

LFP48V200AH (48V-9.6Kwh)

For On / Off Hybrid Solar Storage System





1. Safety Precautions

- It is very important and necessary to read the user manual carefully before installing or using the battery. Failure to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, death, or may damage the battery and the whole system.
- If the battery is stored for a prolonged time, it is requirement that they are charged every three to six months, and the SOC should be no less than 80%.
- The battery needs to be recharged within 12 hours, after fully discharging.
- Do not expose cable outside.
- All battery terminals must be disconnected before maintenance.
- Do not use cleaning solvents to clean the battery.
- Do not expose the battery to flammable or harsh chemicals or vapors.
- Do not paint any part of the battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly.
- Any foreign object is prohibited to be inserted into any part of the battery.
- Any warranty claims are excluded for direct or indirect damage due to items above.

1.1.Before Connecting

- After unpacking, please check the battery and packing list first, if the battery is damaged or spare parts are missing, Please contact the dealer.
- Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode;
- Wiring must be correct, do not mix-connect the positive and negative cables, and ensure no short circuit with the external device;
- It is prohibited to connect the battery with AC power directly;
- The embedded BMS in the battery is designed for 48VDC, please DO NOT connect battery in series;
- It is prohibited to connect the battery with different type of battery;
- Please ensure the electrical parameters of battery system are compatible to inverter;
- Keep the battery away from fire or water.

1.2.During operation

- If the battery system needs to be moved or repaired, the power must be cut off first and the battery is completely shutdown;
- It is prohibited to connect the battery with different type of battery;
- In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;
- Please do not open, repair or disassemble the battery. We do not undertake any consequences or related responsibility due to violation of safety operation or violating of design, production and equipment safety standards.



2. Battery Specifications

Battery Specifications			
Model No	LFP48V100AH	LFP48V150AH	LFP48V200AH
Nominal Parameters			
Voltage	48 V	48 V	48 V
Capacity	100Ah	150Ah	200Ah
Energy	4.8 KWH	7.2 KWH	9.6 KWH
Dimensions (L x W x H)	680 x495 x190mm	680 x495 x190mm	680 x495 x190mm
Net Weight	67kg	80kg	96kg
Compose	15S2P	15S3P	15S4P
Basic Parameters			
Life time(25°C)	10 years		
Communication Method	CAN/RS485		
Display method and language	LCD, English		
Life cycles(80% DOD, 25°C)	>6000 times Cycles		
Storage time / temperature	5 months @ 25°C; 3 months @ 35°C; 1 month @ 45°C		
Operation temperature	-20°C to 60°C @60+/-25% Relative Humidity		
Recommend storage temperature	15°C to 35°C @60+/-25% Relative Humidity		
Lithium Battery Standard	IEC62619, UN38.3, ROHS, CE-EMC, UL1642, MSDS		
Enclosure protection rating	IP21		
Electrical Parameters			
Operation voltage	48 Vdc	48 Vdc	48 Vdc
Max. charging voltage	54.75Vdc	54.75Vdc	54.75Vdc
Cut-off Discharge Voltage	40.5 Vdc	40.5 Vdc	40.5 Vdc
Max. discharging current	100A dc	150A dc	150A dc
Max. charging current	100A dc	100A dc	100A dc



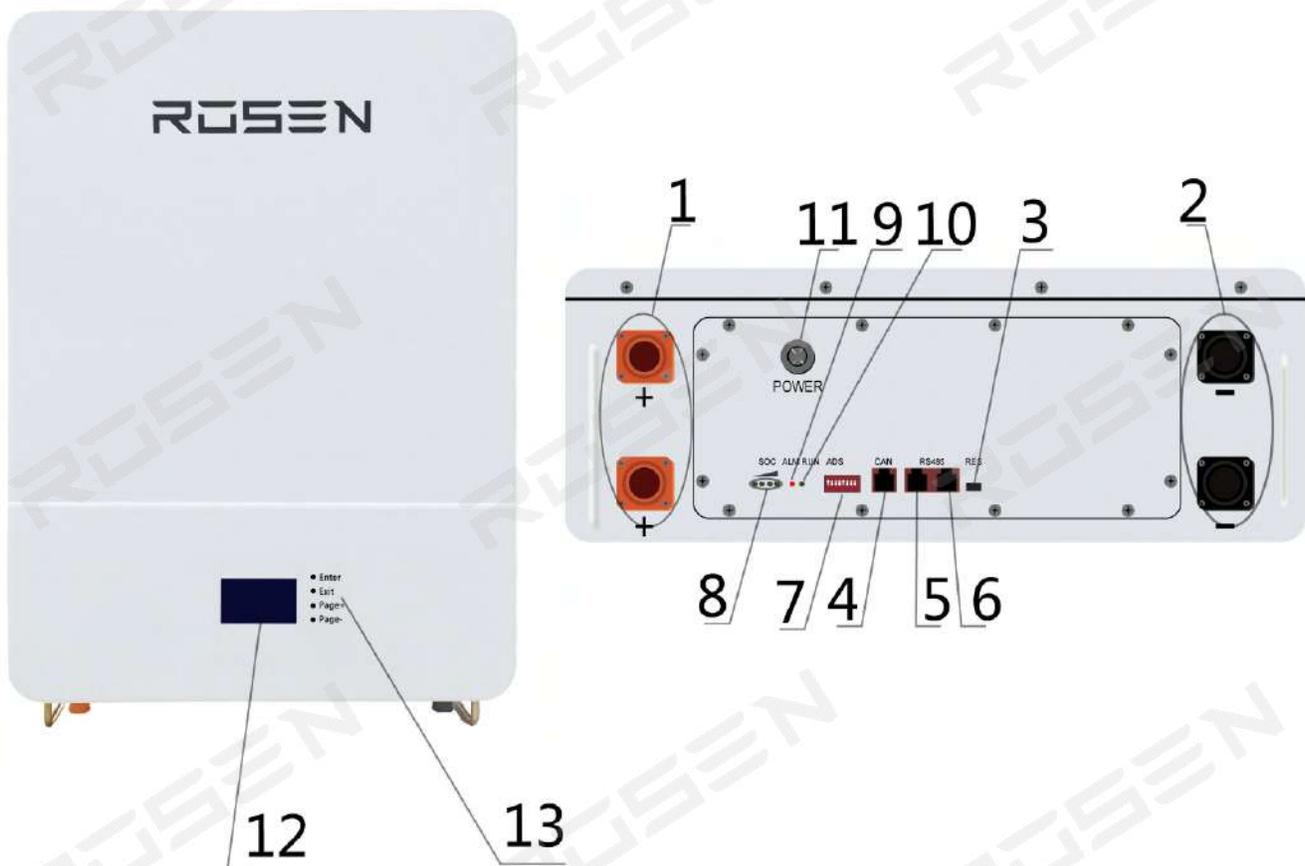
3.Introduction to the battery

3.1.Key Features

- LiFePo4 composition – provides exceptional safety and longevity
- High safety and reliability
- >6,000 cycles/10 years service life
- Consistent performance over wide temperature range
- Wall-mounted, convenient installation
- Integrated state-of-the-art BMS to manage and monitor battery information including voltage, current and temperature as well as balance cell charging/discharging rates
- 10 years warranty

3.2.Interface Introduction

- This section details the interface functions of front and back panel.
- Front interface:





●No.	●Description	●Silk-screen	●Remark
●1	●Positive	●P+ P+	●Output terminal
●2	●Negative	●P- P-	●Output terminal
●3	●Reset button	●RES	●For BMS Reset
●4	●CANbus Port	●CAN	●CANbus and inverter connection port
●5	●RS485A Port	●RS485	●RS485 and inverter connection port
●6	●RS485B port	●RS485	●RS485 parallel communication interface
●7	●Dial switch	●ADS	●Set the address
●8	●LED	●SOC	●Capacity indicator
●9	●LED	●ALM	●Alarm indicator
●10	●LED	●RUN	●Operation indicator
●11	●LCD Key	●Power	●
●12	●LCD	●	●
●13	●	●	●

3.3. SOC Indicator & Status Indicator Guides

●Chart 1: Battery Status

Status	Normal/ Warning/ Protection	RUN		ALM		Capacity (SOC) LED				Description	
		●	●	●	●	●	●	●	●		
Shut Down	Shut down	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby	Normal	Flash	OFF	Based on capacity						Standby	
	Warning	Flash	Flash	Based on capacity							
Charge	Normal	NO	OFF	Based on capacity						ALM light does not flash when overcharge alarm	
	Warning	NO	Flash	Based on capacity							
	Over Charge Protection	NO	OFF	NO	NO	NO	NO	NO	NO	NO	Switch to standby when there is no charging



	Temperature, Current, Failure protection	OFF	NO	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash	OFF	Based on capacity						
	Warning	Flash	Flash							
	Over discharge protection	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
	Temperature, Over current, Short circuit, Reverse connection, Failure protection	OFF	NO	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharging
Fault	/	OFF	NO	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging or discharging

●Chart 2: Battery Capacity

Status		Charging						Discharging					
Capacity LED Indicator		● L6	● L5	● L4	● L3	● L2	● L1	● L6	● L5	● L4	● L3	● L2	● L1
Capacity	0~16.6%	OFF	OFF	OFF	OFF	OFF	Flash	OFF	OFF	OFF	OFF	OFF	NO
	16.6~33.2%	OFF	OFF	OFF	OFF	Flash	NO	OFF	OFF	OFF	OFF	NO	NO
	33.2~49.8%	OFF	OFF	OFF	Flash	NO	NO	OFF	OFF	OFF	NO	NO	NO
	49.8~66.4%	OFF	OFF	Flash	NO	NO	NO	OFF	OFF	NO	NO	NO	NO
	66.4~83.0%	OFF	Flash	NO	NO	NO	NO	OFF	NO	NO	NO	NO	NO
	83.0~100%	Flash	NO	NO	NO	NO	NO	OFF	OFF	NO	NO	NO	NO
RUN Status ●		NO						Flash					

3.3. Connectors

Charge / Discharge connectors: to connect the positive pole (+) and negative pole (-) from the battery to the inverter via DC isolator.

CAN/RS485: Active communication portal between battery and inverter.

Address: Reserved Address portal for multiple parallel connections.

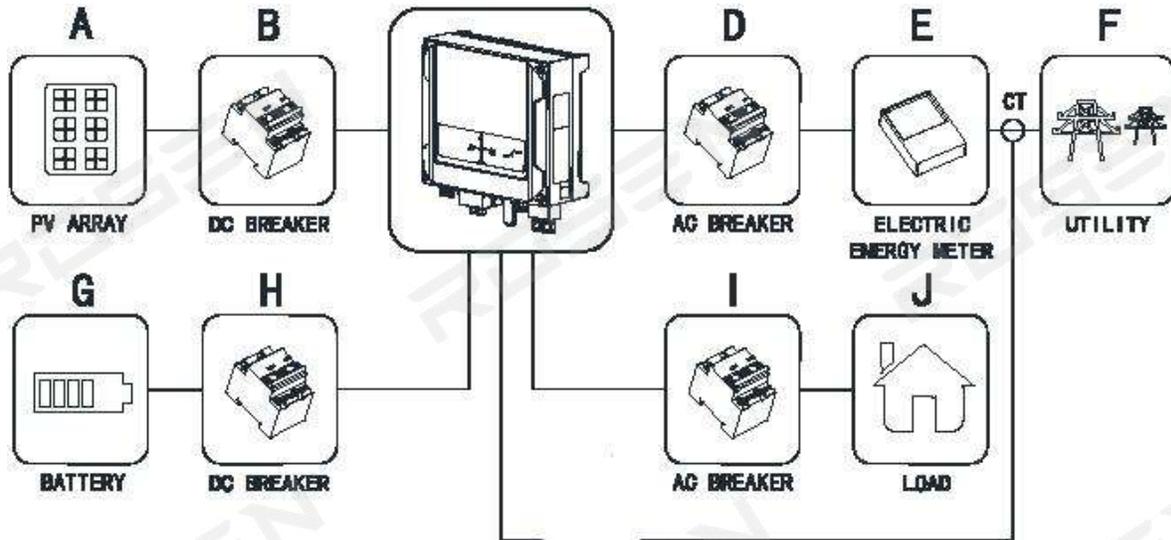
3.4. Wake Up button

- Battery On: When battery is shut down, press this POWER button. It is opened when the LED lights flicker from RUN light to the lowest capacity indicator.
- Battery off: When battery is opened, press this POWER button. It will be shut down when the LED lights flicker from lowest capacity indicator to RUN light.



4. Safe handling guide

4.1. System Diagram



4.2. Tools

The following tools are required to install the battery pack:

- Wire cutter
- Crimping Modular Plier
- Screw Driver

NOTE

- Use properly insulated tools to prevent accidental electric shock or short circuits.
- If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

4.3. Safety Gear

It is recommended to wear the following safety gear when dealing with the battery pack:

- Insulated gloves
- Safety goggles
- Safety shoes



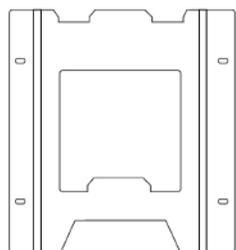
5. Installation

5.1. Inventory of items

Thoroughly inspect the packaging upon receipt of goods. If there is any item missing or if there is any damage to the external packaging or to the unit itself upon unpacking, please contact us immediately.



A



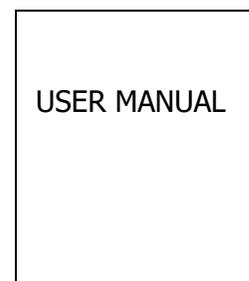
B



C



D



E

NO.	Item	Quantity	Specification
1	Battery Pack	1	4.8/7.2 / 9.6 KWh
2	Mounting frame	1	
3	Mounting frame screw	4	M8*100mm
4	Power Cable(1.5 M)	2	35M ² Wire – M6 150A/1000V
5	user manual	1	This document
6	RS485 com cable	1	1.0 M
Option	Parallel Power cable	2	35M ² Wire –150A/1000V

5.2. Installation Location

Make sure that the installation location meets the following conditions:

- The installation site must be suitable for the size and weight of the battery.
- Must be installed on a firm surface to sustain the weight of battery.
- The area is water proof.
- There are no flammable or explosive materials in proximity
- The ambient temperature is within the range from 0°C to 45°C.
- The temperature and humidity is maintained at a constant level.
- There is minimal dust and dirt in the area.

CAUTION

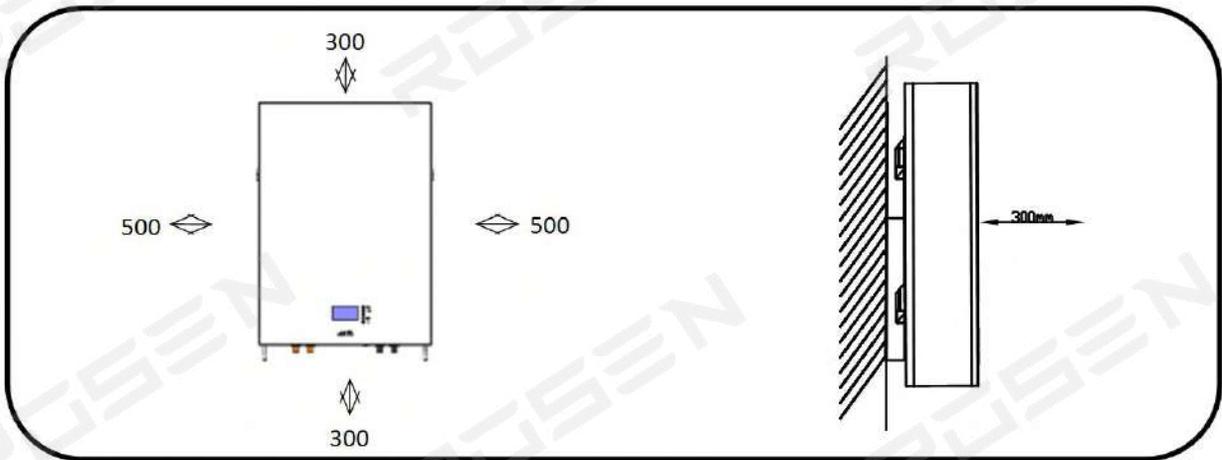
If the ambient temperature is outside the operating range, the battery pack stops operating to protect itself. The optimal temperature range for the battery pack to operate is 0°C to 45°C. Frequent exposure to harsh temperatures may deteriorate the performance and life of the battery pack.



5.2.1. Minimum clearances

Observe the minimum clearances to walls, other batteries or objects as shown in the diagram and picture below in order to guarantee sufficient heat dissipation

Direction	Minimum clearance (mm)
Above	300
Below	300
Sides	500
Front	300



5.3. Installing the Battery Pack

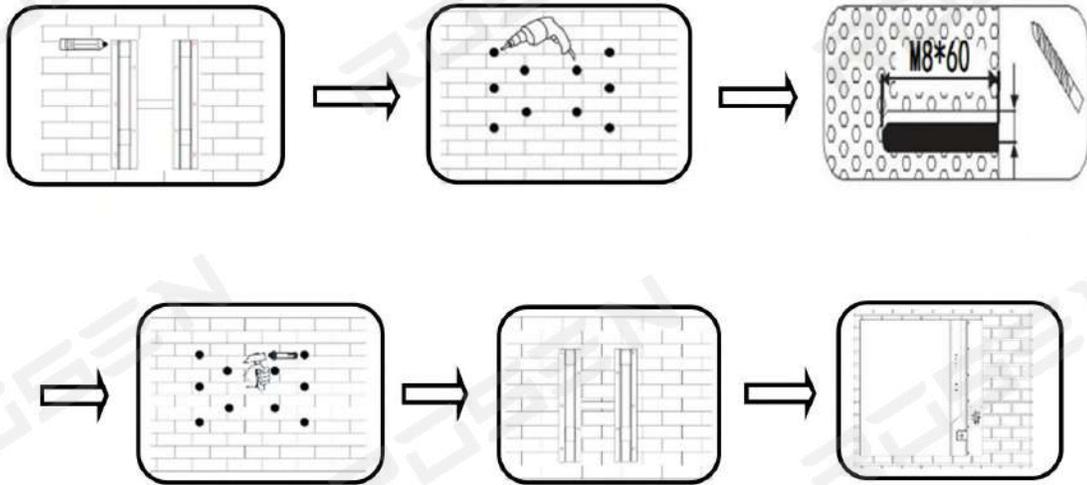
5.3.1. Mounting to a wall

WARNING

In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.

The battery is heavy, please handle with care to avoid damage to the product or injury to the installer.

1. Choose suitable firm wall with thickness greater than 200mm.
2. Use the mounting frame as a template, mark the hole position.
3. Drill 4 holes according to the hole position, it is $\varnothing 10$ with depth 100mm.
4. Hammer the M8 screws to the above holes, and screw the nut. Note: Do not position screws flush to the wall - leave 10 to 20 mm exposed.
5. Fix the mounting frame to the 4 screws.
6. Raise the battery a little higher than the mounting frame whilst maintaining the balance of the battery. Hang the battery on the frame through the match hooks.



! WARNING

Falling equipment can cause serious or even fatal injury: never mount the inverter on the bracket unless you are sure that the mounting frame is firmly mounted on the wall after thorough checking.

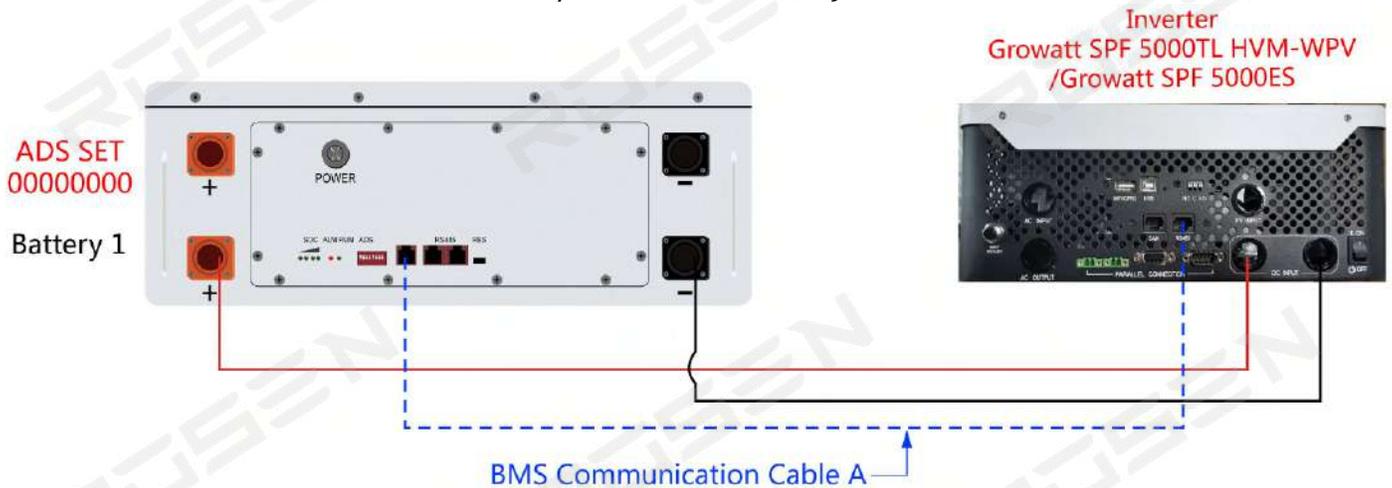
5.4.Parallel use of battery

5.4.1.Parallel use of battery (All off grid solar inverters)

Rosen power wall battery is a smart battery to match all off grid solar inverter (48VDC) types. When the battery needs to be used in parallel, the maximum connection is **14 units**, but we recommend 2-4 units according to application. The lithium battery have matched for Growatt SPF series off grid solar inverter .

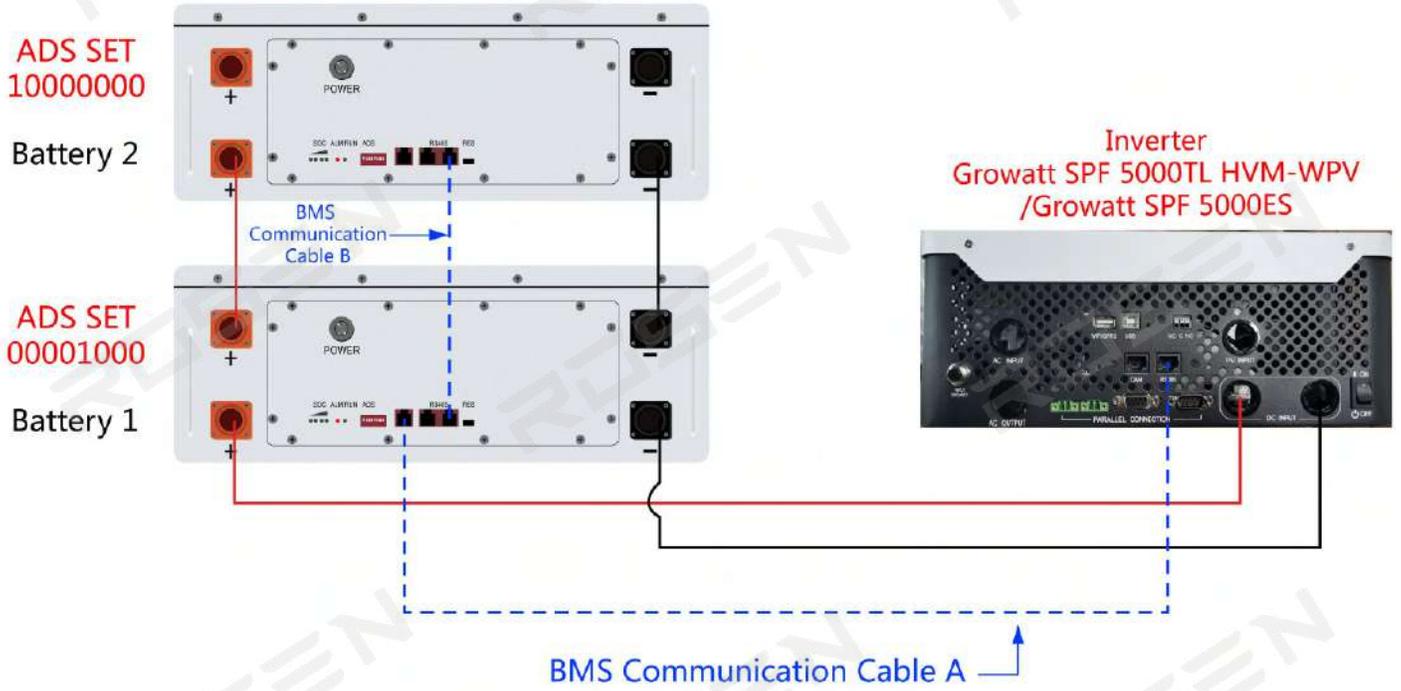
When connecting with other off grid 48VDC solar inverters, it does not need to add CAN/RS485 communication cables with inverters, if inverter brand factory does not have CAN/RS485 port, just plug and play use.

(1) One pcs lithium battery connect diagram
(E.G. Inverter : Growatt SPF 5000TL HVM-WPV/Growatt SPF 5000ES)

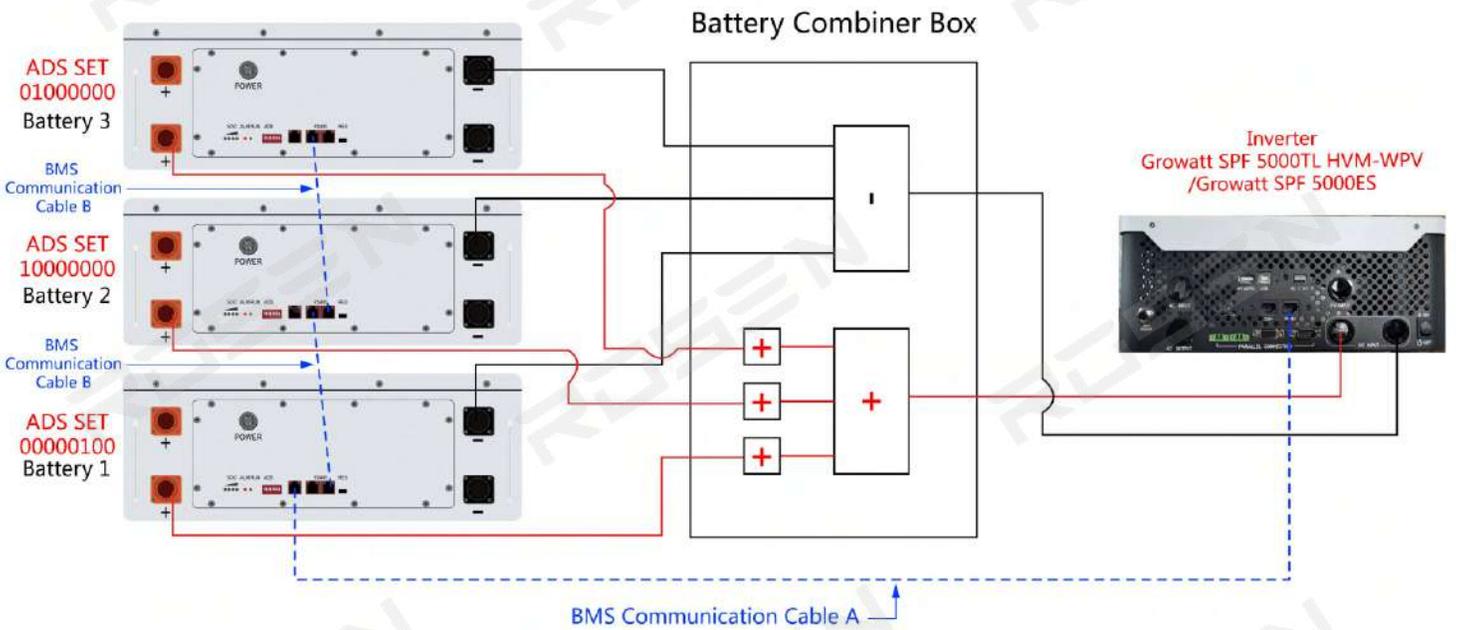




(2) Two pcs lithium batteries parallel connect diagram
 (E.G. Inverter : Growatt SPF 5000TL HVM-WPV/Growatt SPF 5000ES)

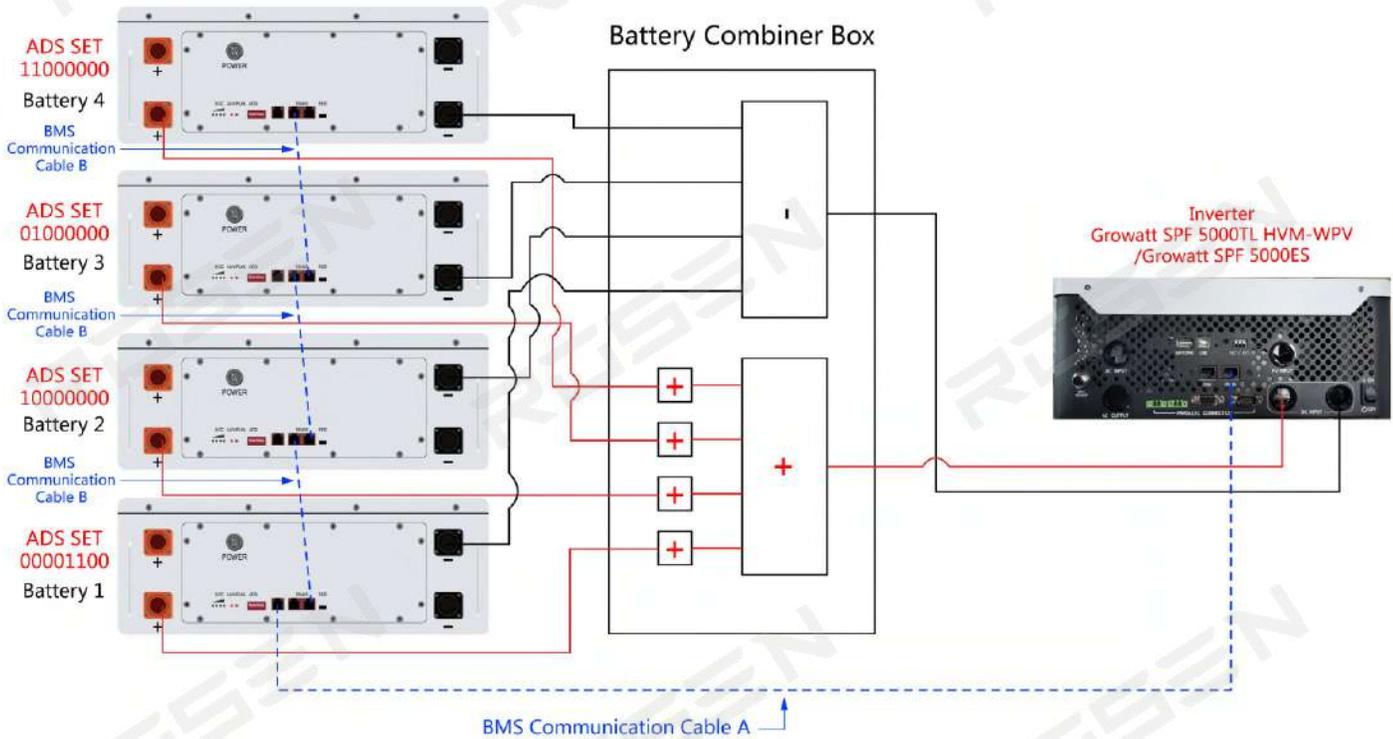


(3) Three pcs lithium batteries parallel connect diagram
 (E.G. Inverter : Growatt SPF 5000TL HVM-WPV/Growatt SPF 5000ES)





(4) Four pcs lithium batteries parallel connect diagram
 (E.G. Inverter : Growatt SPF 5000TL HVM-WPV/Growatt SPF 5000ES)



5.4.2 Parallel use of battery on CAN/RS485 (hybrid on-off grid solar inverters)

When the battery needs to be used in parallel, the maximum connection is **14 units (CAN)** with **hybrid solar inverter**, but we recommend to use 2-4 units according to application. The application needs power and communication connections as below, choose suitable parallel power cables and related connectors.

CAN/RS485 Matched Hybrid Inverter brands

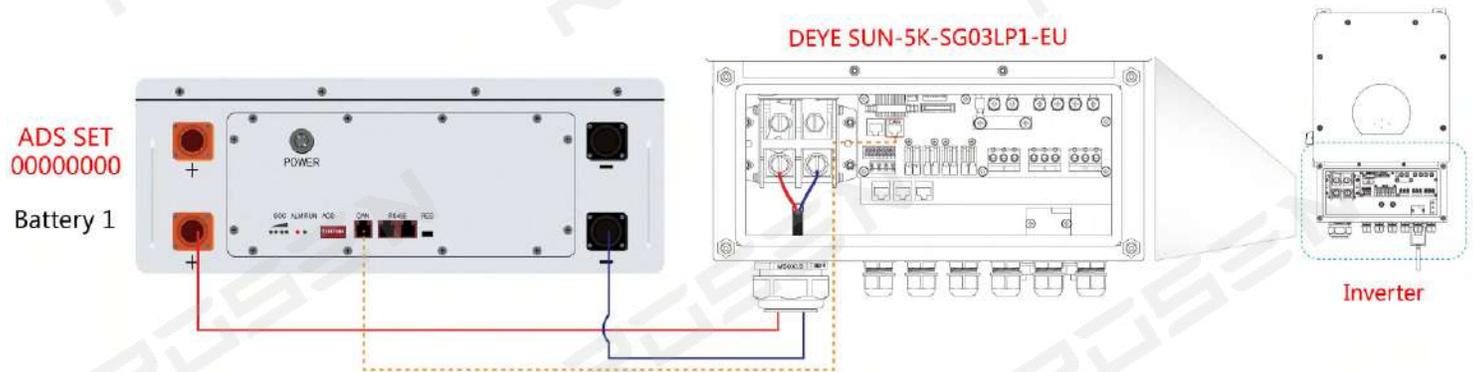
Brand	Model No	Com Port	Cable Supply	Application	Installation
DEYE	SUN-3.6/5K-SG03LP1-EU SUN-5/6K-SG01LP1-US SUN-7.6/8K-SG01LP1-US/EU	CAN	RJ45	On/off-Grid	Wall-mounted
Growatt	SPF series , SPH 3000~6000	RS485	RJ45	On/off-Grid	Wall-mounted
SOFAR	HYD 3000-ES/HYD 3600-ES/HYD 4000-ES/HYD 5000-ES/HYD 6000-ES	CAN	RJ45	On/off-Grid	Wall-mounted
GOODWE	GW3648D-ES/GW5048D-ES/BP/SBP/EM	CAN	RJ45	On/off-Grid	Wall-mounted
LUXPOWER	LXP3.6K/4.6K/5K Hybrid LXP 3600 ACS series	CAN	RJ45	On/off-Grid	Wall-mounted



Victron		CNA	RJ45	On/off-Grid	Wall-mounted
Voltronic Power	Axpert KS 4K; Axpert KS 5K; Axpert VM II 5000-48; Axpert VM III 5000-48; Axpert King 5K; Axpert MAX 7200-48-230; Axpert MAX 7200-48-120; Axpert MKS 4K; Axpert MKS 5K; Axpert MKS II 5K; Axpert MKS 3K-48-Plus; Axpert Plus Duo 5K; Axpert Plus Tri 5K; Alfa P5000-48; Alfa M5000-48; Axpert SE 5000-48; InfiniSolar V-3K-48; InfiniSolar V-4K-48; InfiniSolar V-5K-48;	RS485	RJ45	On/off-Grid	Wall-mounted
MPP SOLAR					
RENAC	N1 HL Series	CAN	RJ45	On/off-Grid	Wall-mounted
Sermatec	SMT-3.6K-TL-LV, SMT-5K-TL-LV, SMT-3.6K-TL-LV-AC, SMT-5K-TL-LV-AC,	CAN	RJ45	On/off-Grid	Wall-mounted
SAJ		CAN	RJ45	On/off-Grid	Wall-mounted
INVT		CAN	RJ45	On/off-Grid	Wall-mounted
SOLIS		CAN	RJ45	On/off-Grid	Wall-mounted

To be continued.....

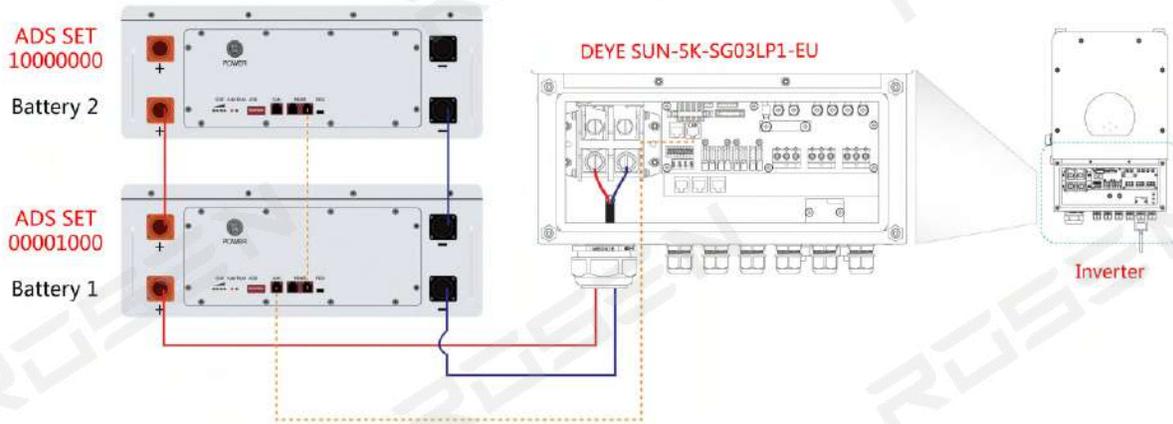
**(1) One pcs lithium battery connect diagram
(E.G. Inverter : DEYE SUN-3.6/5K-SG03LP1-EU/SUN-5/6K-SG01LP1-US/SUN-7.6/8K-SG01LP1-US/EU)**





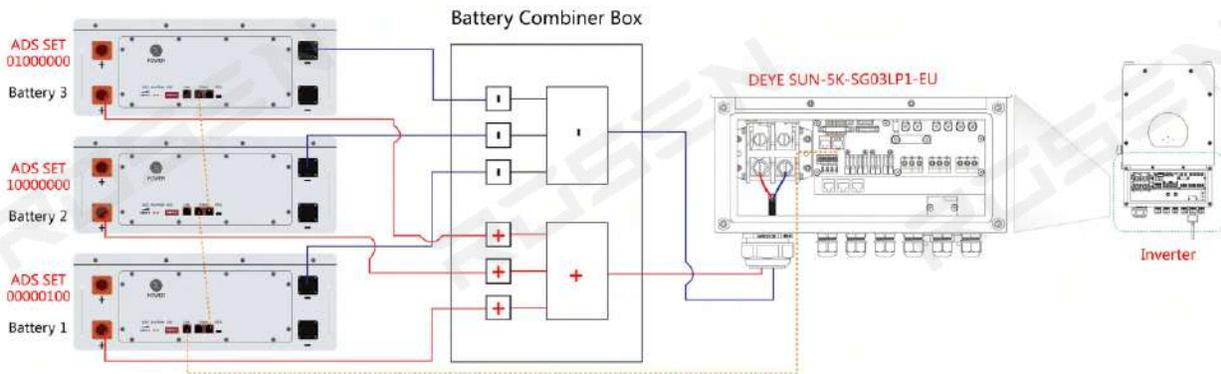
(2) Two pcs lithium battery connect diagram

(E.G. Inverter : DEYE SUN-3.6/5K-SG03LP1-EU/SUN-5/6K-SG01LP1-US/SUN-7.6/8K-SG01LP1-US/EU)



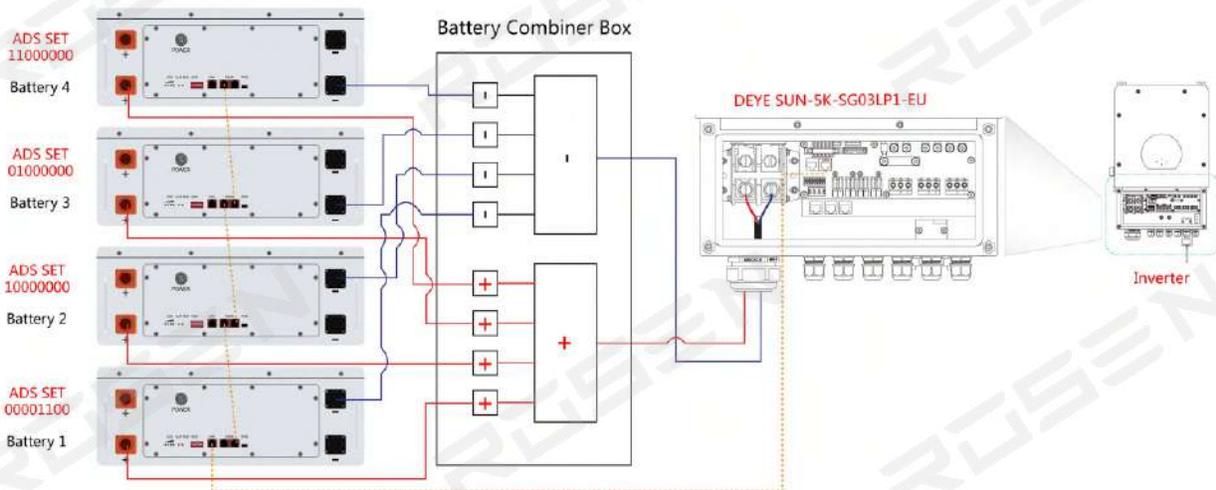
(3) Three pcs lithium battery connect diagram

(E.G. Inverter : DEYE SUN-3.6/5K-SG03LP1-EU/SUN-5/6K-SG01LP1-US/SUN-7.6/8K-SG01LP1-US/EU)



(4) Four pcs lithium battery connect diagram

(E.G. Inverter : DEYE SUN-3.6/5K-SG03LP1-EU/SUN-5/6K-SG01LP1-US/SUN-7.6/8K-SG01LP1-US/EU)





6. Product Warranty

- 6.1.** If you have purchased this product from factory, you should be aware that this warranty is provided in addition to other rights and remedies held by a consumer at law.
- 6.2.** You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
- 6.3.** For the above mentioned products, you receive the factory warranty valid for 10 years from the date of delivery from factory. The factory warranty covers any costs for repair or spare parts during the agreed period beginning on the date of delivery of the device, subject to the following conditions.

6.4. Factory Warranty Scope

The factory warranty does not cover damages caused by following reasons:

- Breaking the product seal (opening the casing)**
- Transport damage**
- Incorrect installation or commissioning**
- Failure to observe the user manual, quick installation instructions**
- Incorrect usage or inappropriate operation**
- Insufficient ventilation of the device**
- Failure to observe the applicable safety regulations**
- Force majeure**

Neither does it cover cosmetic defects which do not influence the energy production.

6.5. Warranty conditions

If the battery becomes defective during the agreed factory warranty period and, unless this should be impossible or disproportionate, one of the following options will be selected at the discretion of factory :

- Battery repair or**
- Battery repair at on-site, or**
- Exchange for a replacement device of equivalent value with regard to model and age.**

In the latter case, the remainder of the warranty entitlement will be transferred to the replacement device and your entitlement will be documented at factory.

Excessiveness in the meaning above exists in particular if the cost the measures for factor will be unreasonable.

- In view of the value that the device would have without the defect
- Taking in account of the significance of the defect, and
- After consideration of alternative work around possibilities at factory customers could revert to without significant inconvenience.



Please fill the required information in and send this page to factory when you need to apply warranty service support

Warranty Card

User Information

Company / User Name:

Address:

Telephone:

Email:

Project installation location:

Product Information

Battery Model:

Serial No :

Invoice Number :

Purchase Date :

Dealer :

Commission date :

Fault/Error Description: